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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,534	07/24/2003	Tong Zhang	10018743	8212
22879	7590	06/20/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			QIN, JIANCHUN	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/625,534

Applicant(s)

ZHANG, TONG

Examiner

Jianchun Qin

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10, 15-23, 27, 29-35, 38 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 4-9, 11-14, 24-26, 28, 36, 37 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 10, 34 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. (U.S. Pub. No. 20020147728) in view of Jiang et al. (U.S. Pub. No. 20050075863).

With respect to claim 1:

Goodman et al. teach a method for automatic classification of music, comprising: receiving a music piece to be classified (sections 0057 and 0060); determining when the received music piece comprises human singing (sections 0053, 0057 and 0061); labeling the received music piece as singing music when the received music piece is determined to comprise human singing (sections 0024, 0055 and 0061); and labeling the received music piece as instrumental music when the received music piece is not determined to comprise human singing (sections 0024, 0055 and 0061).

Goodman et al. do not mention expressly: determine a music type based on a detection of human singing by analyzing a waveform of the music piece comprising a composite of music components.

Jiang et al. teach a method for determining a music type based on a detection of human singing by analyzing a waveform of the music piece comprising a composite of music components (sections 0022-0023, 0025 and 0036-0037).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Jiang et al. into the invention of Goodman et al. in order to digitally classify a received music piece accurately and efficiently by using a robust technique of audio information processing (Jiang et al., sections 0003-0004).

With respect to claim 2:

Goodman et al. also teach: the received music piece is comprised of at least music sounds, and wherein the music piece can include one or more of audiovisual signals and/or non-music sounds (section 0057, lines 5-7).

With respect to claim 34:

Goodman et al. teach a computer readable medium encoded with software for automatically classifying a music piece (see Abstract), wherein the software is provided for determining when a music piece comprises human singing (sections 0053, 0057 and 0061); labeling the music piece as singing music when the music piece is determined to comprise human singing (sections 0024, 0055 and 0061); and labeling the music piece as instrumental music when the music piece is not determined to comprise human singing (sections 0024, 0055 and 0061).

Goodman et al. do not mention expressly: determine a music type based on a detection of human singing by analyzing a waveform of the music piece comprising a composite of music components.

Jiang et al. teach a method for determining a music type based on a detection of human singing by analyzing a waveform of the music piece comprising a composite of music components (sections 0022-0023, 0025 and 0036-0037).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Jiang et al. into the invention of Goodman et al. in order to digitally classify a received music piece accurately and efficiently by using a robust technique of audio information processing (Jiang et al., sections 0003-0004).

With respect to claims 10 and 38:

Claims 10 and 38 recite an intended use of the method and system for classification of music taught by Goodman et al. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

3. Claims 3 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. in view of Jiang et al., as applied to claims 1 and 34 above, and further in view of Stewart (U.S. Pat. No. 4015087).

Goodman et al. and Jiang et al. teach a method and computer software for classification of music that includes the subject matter discussed above in accordance with claims 1 and 34. Goodman et al. and Jiang et al. do not mention expressly: a spectrogram analysis is used for said classification.

Stewart teaches a technique of spectrogram analysis for human speech recognition (col. 1, lines 13-16; cols. 1-2, lines 61-6; col. 10, lines 21-38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Stewart in the combination of Goodman et al. and Jiang et al. in order to provide an algorithm for audio signal analysis based on spectral energy concentration of a portion of the audio signal in the time domain as well as in the frequency domain (Stewart, col. 2, lines 7-13).

4. Claims 15-18 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. in view of Jiang et al., as applied to claims 1 and 34 above, and further in view of Kanevsky et al. (U.S. Pat. No. 6434520).

Goodman et al. and Jiang et al. teach a method and computer software for classification of music that includes the subject matter discussed above in accordance with claims 1 and 34. Goodman et al. further teach, regarding claim 17, the user selects a hierarchical structure of categories for controlling the classification of the music piece (section 0063).

Goodman et al. and Jiang et al. do not mention expressly: regarding claims 15 and 40, the labeled music piece is written into a library of classified music pieces; regarding claims 16 and 41, the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user; and regarding claims 18 and 42, the labeled music piece is written into a hierarchical database according to the structure selected by the user and wherein the labeled music pieces in the hierarchical database can be browsed according to the hierarchy.

Kanevsky et al. disclose a system and method for indexing and querying audio archives, and teach the step and means of: when a music piece satisfies at least one selected category, writing the labeled music piece into a library of classified music pieces (col. 1, lines 54-56; col. 7, lines 21-39 and col. 8, lines 34-36); the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user (col. 7, lines 45-59); and the labeled music piece is written into a hierarchical database according to the structure selected by the user (col. 7, lines 45-67) and wherein the labeled music pieces in the hierarchical database can be browsed according to the hierarchy (col. 9, lines 34-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the combination of Goodman et al. and Jiang et al. to obtain a library of classified music piece for the purpose of efficient sorting and storing music pieces in their archives and facilitating subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

5. Claims 19-22, 27 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. in view of Jiang et al. and Kanevsky et al.

With respect to independent claim 19:

Goodman et al. teach a method for classification of music (see Abstract), comprising: selecting parameters for controlling the classification of a music piece comprising a plurality of music components, wherein the selected parameters establish a hierarchy of categories for classifying the music piece (section 0024, 0049, 0053 and 0060); determining, in a hierarchical order and for each selected category, when the music piece satisfies the category (section 0024, 0049, 0053 and 0060); labeling the music piece with each selected category satisfied by the music piece (section 0024, 0049, 0053 and 0060).

Goodman et al. do not mention expressly: using waveform analysis to determining when the music piece satisfies the category; and when the music piece satisfies at least one selected category, writing the labeled music piece into a library according to a hierarchy of the categories satisfied by the music piece.

Jiang et al. teach a method for determining a music type based on a detection of human singing by analyzing a waveform of the music piece comprising a composite of music components (sections 0022-0023, 0025 and 0036-0037).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Jiang et al. into the invention of Goodman et al. in order to digitally classify a received music piece accurately and



efficiently by using a robust technique of audio information processing (Jiang et al., sections 0003-0004).

, Kanevsky et al. disclose a system and method for indexing and querying audio archives, and teach the step and means of, when a music piece satisfies at least one selected category, writing the labeled music piece into a library according to a hierarchy of the categories satisfied by the music piece (col. 1, lines 54-56; col. 7, lines 21-39 and col. 8, lines 34-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. to obtain the invention as specified in claim 19 in order to efficiently sort and store music pieces in their archives and to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to claims 20 and 21:

Goodman et al., Jiang et al. and Kanevsky et al. teach a method for classification of music that includes the subject matter discussed above in accordance with claim 19. Goodman et al. further teach, the categories include instrumental, singing music, symphony, a specific band, specific instrument music, other harmonic music, chorus, and vocal solo (section 0057).

Kanevsky et al. further teach: selecting parameters for subsequent browsing of the library for desired music pieces (col. 9, lines 34-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of

Goodman et al. and Jiang et al. in order to efficiently sort and store music pieces in their archives and to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to independent claims 22 and 31:

Goodman et al. teach a computer-based system for automatic classification of music (see Abstract), comprising: a computer configured to determine when the received music piece comprises human singing (sections 0053, 0057 and 0061); label the received music piece as singing music when the received music piece is determined to comprise human singing (sections 0024, 0055 and 0061); label the received music piece as instrumental music when the received music piece is not determined to comprise human singing (sections 0024, 0055 and 0061).

Goodman et al. do not mention expressly: a device configured to receive a music piece to be classified; using waveform analysis to determine when the received music piece comprising a plurality of music components comprises human singing; write the labeled music piece into a library of classified music pieces.

Jiang et al. teach a device configured to receive a music piece to be classified (section 0022); using waveform analysis to determine when the received music piece comprising a plurality of music components comprises human singing (sections 0022-0023, 0025 and 0036-0037).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Jiang et al. into the invention of Goodman et al. in order to digitally classify a received music piece accurately and

efficiently by using a robust technique of audio information processing (Jiang et al., sections 0003-0004).

Kanevsky et al. teach: a device configured to receive a music piece to be classified (Fig. 2A, #200); and write the labeled music piece into a library of classified music pieces (Fig. 2B, #213; col. 8, lines 34-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. to obtain a library of classified music pieces for the purpose of efficiently sorting and storing music pieces in their archives to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to claim 27:

Claim 27 recites an intended use of the method and system for classification of music taught by Goodman et al. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

With respect to claims 29, 30, 32 and 33:

Goodman et al., Jiang et al. and Kanevsky et al. teach a method and system for classification of music that includes the subject matter discussed above in accordance

with claims 22 and 31. Goodman et al. further teach: regarding claim 30, an interface configured to select parameters for controlling the classification of the music (section 0063); regarding claims 32 and 33, means for labeling the classified music piece as a particular category of music (sections 0024, 0055 and 0061), and means for selecting control parameters to control, adjust, and/or customize the classifying of the music piece (section 0063).

Kanevsky et al. further teach, regarding claim 29, that the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user (col. 7, lines 45-59).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. and Jiang et al. in order to efficiently sort and store music pieces in their archives and to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. in view of Jiang et al. and Kanevsky et al., as applied to claim 22 above, and further in view of Stewart.

Goodman et al., Jiang et al. and Kanevsky et al. teach a method for classification of music that includes the subject matter discussed above.

The combination of Goodman et al., Jiang et al. and Kanevsky et al. does not mention expressly: the presence of human singing on the received music piece is determined by analyzing a spectrogram of the received music piece.

Stewart teaches a technique of spectrogram analysis for human speech recognition (col. 1, lines 13-16; cols. 1-2, lines 61-6; col. 10, lines 21-38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Stewart in the combination of Goodman et al. and Jiang et al. in order to provide an algorithm for audio signal analysis based on spectral energy concentration of a portion of the audio signal in the time domain as well as in the frequency domain (Stewart, col. 2, lines 7-13).

#### ***Allowable Subject Matter***

7. Claims 4-9, 11-14, 24-26, 28, 36, 37 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Reasons for Allowance***

9. The following is an examiner's statement of reasons for allowance:

Please see previous Office Action dated 03/08/06 for reasons for allowance of the claims of 4-9, 11-14, 24-26, 28, 36, 37 and 39.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

10. Applicant's arguments received 04/10/06 with respect to claims 1-42 have been considered but are moot in view of the new ground(s) of rejection.

Claims 1-3, 10, 15-23, 27, 29-35, 38 and 40-42 are rejected as new prior art reference (U.S. Pub. No. 20050075863 to Jiang et al.) has been found to teach the limitations argued by the Applicant. Detailed response is given in sections 3-7 as set forth above in this Office Action.

**Contact Information**


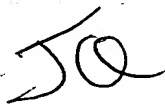
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianchun Qin whose telephone number is (571) 272-5981. The examiner can normally be reached on 8am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jianchun Qin  
Examiner  
Art Unit 2837

JQ



LINCOLN DONOVAN  
SUPERVISORY PATENT EXAMINER